

Docket No: NIC043-0001-100  
Serial No. 10/666,163  
§ 1.132 Affidavit of Orhan Tuncay, DMD

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Jonathan L. Nicozisis

Serial No. : 10/666,163

Filed : September 19, 2003

Art Unit : 3732

Examine : Ralph A. Lewis

Attorney Docket: NIC043 - 230540PT1

Title: APPARATUS AND METHOD FOR REMOVING A REMOVABLE TOOTH POSITIONING APPLIANCE FROM THE TEETH OF A PATIENT

**AFFIDAVIT OF DR. ORHAN C. TUNCAY, D.M.D. UNDER 37 C.F.R. § 1.132**

1. I, Orhan C.Tuncay, am an individual residing at 334 South 3rd St., Philadelphia, PA, and am a citizen of the United States of America.

2. I have received the following dental-related education and/or have obtained the following dental-related degrees: (1) University of Ankara, School of Dentistry, received Dental Degree in 1969; (2) University of Pennsylvania, School of Dental medicine, studied as a special student from 1970-1971; (3) University of Pennsylvania, School of Dental Medicine, received a Certificate in Orthodontics in 1974; and (4) Temple University, School of Dentistry, received a Dental Degree in 1997.

3. I currently hold the following positions: (1) Professor & Chairman of the Department of Orthodontics at Temple University; (2) Founder & Editor-in-Chief for the *Orthodontics & Craniofacial Research* publication, published by Blackwell Munksgaard; (3) Founding Editor of the *Progress in Orthodontics* publication, published by Quintessence; (4) Founder & Editor of the *Cases & Commentaries in Orthodontic Technology* publication, published by Prof. Audience Comm.; and (5) Founder & Editor of the *Clinical Reports & Techniques* publication, published by Align Technology.

4. I am also a licensed orthodontist practicing at 1518 Walnut St. #500, Philadelphia, PA 19103 and at 333 S. Oxford Valley Rd. Suite 507, Fairless Hills, PA 19030.

5. My additional professional and/or academic credentials and accomplishments are set forth in my Curriculum Vitae, a copy of which is annexed hereto.

6. I have been practicing orthodontics for over 32 years. My practice of orthodontics has included the fitting, application, and prescription of removable tooth positioning appliances,

such as the one disclosed in FIG. 1 of the present U.S. Patent Application (Serial No. 10/666,163), which are typically sold under the brand name Invisalign® since 1988.

7. Since I have been involved in the fitting, application, and prescription of removable tooth positioning appliances, there has been a need for an orthodontic tool and method that is suitable to remove these tooth positioning appliances from the teeth of patients. I, personally, have been aware of this need since 2000 and the need has been persistent. To the best of my knowledge, despite the existence and recognition of this need in the art, no orthodontic tool or method was developed prior to the present invention that satisfied this need.

8. I have reviewed and am familiar with the orthodontic tool, system, and method disclosed and claimed in United States Patent Application 10/666,163.

9. I have reviewed and am familiar with the orthodontic tool disclosed in United States Patent 2,602,998 ("Sprague"). The Sprague tool is not suitable for removing removable tooth positioning appliances. The Sprague tool is designed for use with the prosthetic dental devices, such as dentures, and for the removal of tartar. The sharp edge of the Sprague tool is designed to engage a hook/clasp of a prosthetic dental device. To the contrary, in order to remove a removable tooth positioning appliance, such as the Invisalign®, the sharp edge of the Sprague tool would have to be wedged between the removable tooth positioning appliance and the gums/teeth of the patient. This would present the danger of damaging the gums/teeth of the patient during the removal process. One skilled in the art would not use the Sprague tool to remove removable tooth positioning appliances and would not distribute the Sprague tool in combination with the removable tooth positioning appliance to patients for home use.

10. In accordance with the foregoing, the aforementioned long felt need is satisfied by the present invention of a dental system for positioning teeth comprising: a removable tooth positioning appliance for aligning teeth of a patient; and an apparatus comprising a handle portion, a member extending from the handle portion and having a distal end, and an engagement block having a tapered edge for engaging an edge of the tooth positioning appliance, the engagement block protruding from the working portion at or near the distal end.

11. In accordance with the foregoing, the aforementioned long felt need is satisfied by the present invention of a method of removing a removable tooth positioning appliance from teeth of a patient comprising: providing an apparatus having a handle portion, a member extending from the handle portion and having a distal end, and an engagement block having a tapered edge, the engagement block protruding from the member at or near the distal end; positioning the tapered edge of the member near an edge of the tooth positioning appliance; inserting the tapered edge between the tooth positioning appliance and the teeth of the patient; and exerting force to the handle portion thereby causing the tooth positioning to release from the teeth of the patient.

12. I, Orhan C. Tuncay, do hereby swear, affirm, and attest that all statements made in paragraphs 1-11 above are true and correct and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that

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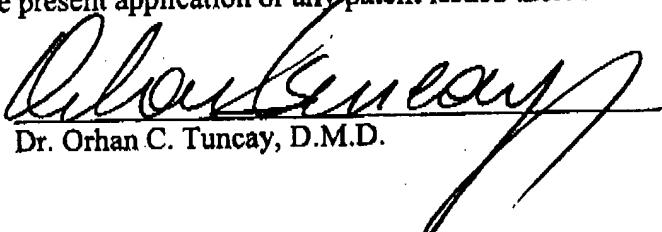
Serial No. 10/666,163

§ 1.132 Affidavit of Orhan Tuncay, DMD

**PATENT**

willful false statements and the like are so made under the penalties of perjury, and that any false statements may jeopardize the validity of the present application or any patent issued thereon.

Date: Sep. 27, 2005

  
Dr. Orhan C. Tuncay, D.M.D.

*Curriculum Vitae*  
of  
**ORHAN C. TUNCAY**

January, 2005

**GENERAL INFORMATION**

**Current Positions Held:**

*Professor and Chairman,* Department of Orthodontics - Temple University

*Founder & Editor-in-Chief,* ORTHODONTICS & CRANIOFACIAL RESEARCH  
Publisher: Blackwell Munksgaard

*Founding Editor,* PROGRESS *in* ORTHODONTICS  
Publisher: Quintessence

*Founder & Editor,* CASES & COMMENTARIES IN ORTHODONTIC  
TECHNOLOGY

*Founder & Editor,* Publisher: Prof Audience Comm  
CLINICAL REPORTS & TECHNIQUES  
Publisher: Align Technology

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Philadelphia, PA 19102

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Suite 507  
Fairless Hills, PA 19030

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Current Home Address:

334 So. 3<sup>rd</sup> St.  
Philadelphia, PA 19106

Telephone: (215) 592-0123

Licenses:

4429, Kentucky  
2511-89, Mississippi  
DS-029412-R, Pennsylvania

Marital Status:

Married (Agnes Akiko Kan)

Citizenship:

U.S.

Language Proficiency:

English and Turkish

**EDUCATION**

- 1964-69 School of Dentistry, Faculty of Medicine, University of Ankara,  
Dental Degree: Dis Hekimi (*Dr. Med. Dent*)
- 1970-71 School of Dental Medicine, University of Pennsylvania, Special  
Student
- 1972-74 School of Dental Medicine, University of Pennsylvania, Certificate  
in Orthodontics
- 1994-97 School of Dentistry, Temple University, Dental Degree (*DMD*)

**PROFESSIONAL EXPERIENCES**

- 1974-87 Intramural practice limited to orthodontics, University of Kentucky,  
College of Dentistry
- 1985-87 Craniofacial Deformities Clinic, at Daniel Boone Clinic, Harlan  
Kentucky

- 1988-94 Intramural practice limited to orthodontics, University of Mississippi Medical Center
- 1989-94 Attending Dentist University Hospital, University of Mississippi Medical Center
- 1989-94 Craniofacial Clinic University Hospital, University of Mississippi Medical Center
- 2002- Private practice of orthodontics

#### **ACADEMIC APPOINTMENTS**

- 1971-73 Research Associate, School of Dental Medicine, Department of Biochemistry, University of Pennsylvania
- 1974-80 Assistant Professor in Orthodontics, University of Kentucky, College of Dentistry
- 1/77-4/77 Acting Chairman, Department of Orthodontics, University of Kentucky, College of Dentistry
- 1977-80 Associate Member in the Graduate Faculty, University of Kentucky
- 1977-87 Director, Undergraduate Orthodontic Program, University of Kentucky, College of Dentistry
- 1980-87 Associate Professor in Orthodontics, University of Kentucky, College of Dentistry
- 1980-87 Full member in the Graduate Faculty, University of Kentucky
- 1981-87 Director of Graduate Studies, University of Kentucky, College of Dentistry
- 1981-87 Director, Graduate Orthodontic Program, University of Kentucky, College of Dentistry
- 1981-87 Chairman, Department of Orthodontics, University of Kentucky
- 1985-87 Visiting Professor of Biochemistry, Department of Biochemistry, University of Pennsylvania, School of Dental Medicine

- 1988-94 Professor and Chairman, Dept. of Orthodontics, University of Mississippi Medical Center, School of Dentistry
- 1990-92 Director, Short-Term Training: Students in Health Professional Schools.  
T-35 DE07119, University of Mississippi
- 1994- Professor and Chairman, Department of Orthodontics, Temple University School of Dentistry
- 1994- Director of Graduate Program in Orthodontics, Temple University
- 1999-00 Professor and Chairman, Department of Orthodontics and the Division of Pediatric Dentistry. Temple University.

## **HONORS**

- 2000 Honorary Member, Charles H. Tweed International Foundation  
2001 The Orhan C. Tuncay Teaching Fellowship, AAO Foundation  
2001 Fellow, College of Physicians of Philadelphia  
2003 Keynote Speaker, Invisalign Summit

## **CONSULTING ACTIVITY**

- 1980 St. Louis University, External Examiner
- 1982 NIH/NIDR Member, Project Site Team, Center for Oral Health Research, University of Pennsylvania
- 1983 NIH/NIDR External Reviewer, Oral Biology and Medicine Ad Hoc Study Section
- 1984 NIH/NIDR Member, Oral Biology and Medicine Ad Hoc Study Section
- 1985- Consultant to Editorial Board, American Journal of Orthodontics
- 1986 St. Louis University, External Examiner
- 1983-87 Consultant, Kentucky Crippled Children's Program

- 1988-94 Consultant, State of Mississippi, Office of the Governor, Division of Medicaid
- 1994 Consultant for Outcomes Assessment, Postgraduate Orthodontics Program, Case Western Reserve University
- 1998 Ad Hoc Member, Study Section Institute for Liver and Kidney Diseases, NIH
- 2000 Ad Hoc member and consultatnt - AAOF Board of Trustees
- 2003 Member Initial Review Group NIH, SBIR/STTR
- 2003 Member Initial Review Group NIH, SBIR/STTR
- 2003 - Scientific Advisory Board – BAS Medical
- 2002 - Academic Advisory Board – Align Technology

**CONTINUING EDUCATION COURSES GIVEN:**

- 1976 "Orthodontic Auxilliary", University of Kentucky, Lexington, Kentucky
- 1977 "Management of the Child Orthodontic Patient", Lexington, Kentucky
- 1978 "Adult Orthodontics", Lexington, Kentucky
- 1979 "Orthodontic-Periodontic Relationships", Lexington, Kentucky
- 1980 "Periodontal Problems in Orthodontic Treatment", Lexington, Kentucky
- 1981 "Orthodontics for the General Practitioner", Lexington, Kentucky
- 1984 "Orthodontics for the General Practitioner", Lexington, Kentucky
- 1986 "Adult Orthodontics", F.Ili Foschi, Bologna, Italy
- 1987 "Orthodontic Diagnosis", F.Ili Foschi, Bologna, Italy
- 1987 "Biomechanics of Orthodontic Treatment", Bologna, Italy
- 2001 "Evidence-based Pearls" University of Kentucky, Lexington, KY
- 2002 "Advances in Clinical Orthodontics" San Juan, Puerto Rico.

- 2004 Advances in technology and biotechnology in orthodontics, MASO, Baltimore
- 2004 "Orthodontic Controversies" Northeast Dental Society, Ben Salem, PA
- 2005 "Update on Orthodontics" Temple University, Philadelphia, PA

## **ADVISING ACTIVITY**

### **Masters' Thesis Committees:**

- 1975 Electrical stimulation of osteogenesis in pathological bony defects.  
*Joseph D. Jacobs*
- 1975 Comparison of soft tissue and bony response to surgical correction of mandibular prognathism in different types of Class III skeletal malocclusions. *Bonnie Daniels-Wheatley*
- 1976 A cephalometric analysis of the anterior vertical, posterior vertical and antero-posterior dimensions of the human craniofacial complex.  
*Richard C. Allen*
- 1976 A comparison of anchorage loss between individual maxillary canine retraction and enmasse maxillary anterior teeth retraction. *Richard Resler*
- 1976 A quantification of maxillary arch perimeter change resulting from maxillary expansion. *Glen R. Malchow*
- 1977 A critical evaluation of the vertical changes associated with surgical intrusion of the maxillary segments for the correction of the skeletal anterior open bite. *William B. Daugherty*
- 1977 Effects of posterior depressing mechanotherapy on vertical and horizontal growth. *Robert H. Curtis*
- 1981 Gingival invaginations in extraction sites of orthodontic patients. *Amanda Rivera*
- 1982 Soft tissue profile changes occurring during orthodontic treatment. *Ralph K. Bair*

- 1986 A photoelastic model to study force systems generated with lingual appliances. *Charles A. Lindsey*
- 1986 Interstitial force generation by rabbit nasal septal cartilage in vitro. *Jeffrey H. Lindsey*
- 1995 An orthopantomographic study of the eruption of mandibular third molars. *Paul Castella*
- 1995 Validity of the prediction of dentoskeletal and soft tissue profile changes after mandibular setback and maxillary impaction osteotomies using a computerized cephalometric system. *Olga-Elpis G. Kolokitha*
- 1995 An application of a classical model of competitive business strategy to the orthodontic industry. *Diane Hughes*
- 2001 A Multicenter Outcomes Assessment of Longitudinal Analysis of Five-year-old Patients with Unilateral Cleft Palate. *Wanda Flinn*
- 2000 The role of  $TGF\beta_1$  and  $\beta_3$  in calvarial bone cell differentiation. *Dimitra Charalambopoulou*
- 2001 UCLP Treatment in the Mixed-dentition Patients in Multiple Centers. *Alberto Vargas*
- 2001 The Effects of  $FGF_2$  and  $BMP_4$  on Prechondrogenic Mesenchymal Cells and Lymphoblastoid Cells as Related to Fibrodysplasia Ossificans Progressiva. *Thomas Kilar斯基*
- 2003 The role of filamin-A in osteoblast mechanotransduction. *Dr. Rita V. Taliwal*
- 2003 Integration of FGF and BMP signaling in chondrocyte differentiation. *Dr. Ousama El-Hillai*

**Supervised Masters' Theses:**

- 1978 Effects of phosphodiesterase inhibition on orthodontic tooth movement in cats. *Samuel J. Burrow*
- 1978 Macrophages as possible precursors for osteoclasts. *Steven L. Cohen*
- 1979 The effects of indomethacin on the rate of orthodontic tooth movement in cats. *A. Brent Chumbley*
- 1981 Stability of surgical mandibular advancement procedures in relation to the occlusal plane. *Nathaniel Ritter*
- 1981 Repair potential of tricalcium phosphate ceramic implants in alveolar dehiscences. *Angel San Miguel*
- 1981 The effects of indomethacin on the chemical mediators of bone resorption, *in vitro*. *Edward Tipton*
- 1981 The role of PGE2 in bone resorption during orthodontic tooth movement. *Jean-Paul Syssens*. St. Louis University
- 1982 In vitro bone resorbing capability of periodontal tissue extracts from the orthodontically treated teeth of rats. *Richard G. Kimmel*
- 1982 Short-term condylar cartilage response to horizontal and vertical mandibular displacement in growing rats. *William B. Simpson*
- 1983 The circulating monocyte as precursor to the osteoclast. *Ronald O. Parsons*
- 1983 Family similarities in craniofacial morphology. *Douglas D. Durbin*
- 1984 A critical evaluation of the vertical changes associated with surgical intrusion of the maxillary segments for the correction of the skeletal anterior open bite. *William B. Daugherty*
- 1985 Analysis of relapse in surgical advancement of rat mandibles: A pilot study to develop a low-cost animal model for the study of skeletal relapse. *Jeffrey A. Bunkers*
- 1985 The effects of diphenhydramine on orthodontic tooth movement. *Robert D. Rust*
- 1985 Excessive gingival display in the adolescent: An orthodontic approach to treatment. *Charles A. Machemehl, III*

- 1986 Repair strength of long bone defects implanted with demineralized bone powder. *Eric E. Huffman*
- 1995 Efficacy of collection methods. *Lisa B. Valins*
- 1995 Application of fractal analysis to assessment of alveolar bone architecture during tooth movement. *Farshad A. Zaghi*
- 1995 The effects of baking soda-containing dentifrices on the retention and solubility of orthodontic cements. *Richard A. Kaye*
- 1996 Development of a low-cost three dimensional imaging system for orthodontic diagnosis and treatment planning. *Michiel J. Nuveen*
- 1996 Expression of genes associated with remodeling in the human gingival fibroblast subjected to ultrasonic perturbation. *Jane L. Grosser*
- 1996 The expression of Homeobox genes in chondrocytes subjected to physical perturbation. *Richard A. D'Avanzo*
- 1996 Apoptotic cell death in mechanically perturbed chondrocytes. *Aaron Milchman*
- 1996 The effects of ultrasound on cellular metabolism in human gingival fibroblasts. *Patricia A. Dunn*
- 1996 A clinical study of the effect of ultrasound application on the rate of tooth movement. *Gerardo Guajardo*
- 1997 The effects of IL-1 and physical perturbation on the expression of NF- $\kappa$ B in osteoblasts and gingival fibroblasts in vitro. *Britt D. Vinson*
- 1997 Evaluation of type I, II, III, IX, and X collagen gene expression in the midpalatal suture during rapid expansion in the rat. *Lisa M. Banning*
- 1997 The effect of dihomo-gamma-linoleic acid (DGLA) on human gingival fibroblasts. *Yakov S. Eisenberger*
- 1997 Gene expression in human osteoblasts subjected to IL-1 and ultrasound perturbation in vitro. *Ali S. Husain*.  
Winner: **MASO** Kress Research Award.
- 1997 Financial business plan: Making the transition from residency to practice. *James D. Riesenberger*

- 1997 Correlation between mean standard craniofacial measurements and perception of good-looking faces of the Puerto Rican hispanic group.  
*Jose M. Hernandez - Loring*
- 1997 Periodontal, cephalometric and esthetic outcomes of an inappropriate treatment plan. *Tracy R. Patterson*
- 1998 The curve of Spee effect on the stability of the corrected malocclusion.  
*Kristin A. Thiry*
- 1998 The influence of periosteum on the prolific characteristics of periodontal ligament fibroblasts in vitro. *Anne O'Day*
- 1998 The role of the p53 gene in the osteoblast response to physical perturbation. *Thao T. Le*
- 3D image construction of the craniofacial complex. *Can X. Nguyen*
- 1998 The effect of ultrasound perturbation on the induction of vascular endothelial growth factor (VEGF) in primary cultures of endothelial cells, osteoblastic cells and gingival fibroblasts. *Kianoush M. Tari*  
Winner: MASO Kress Research Award
- 1999 A stochastic financial model to evaluate the value of the option to specialize in orthodontics. *Kevin J. Klatte*
- 1999 Localization of nitric oxide synthase in the periodontal tissues of orthodontically moved and stationary teeth. *Joseph M. Brogan*
- 1999 Defining characteristics of financially successful orthodontists. *Mathew J. Coats*
- 1999 Satisfaction of parents and orthodontists with orthodontic treatment outcome and care delivery. *Susan M. Lempert*
- 1999 Outcomes assessment of cleft lip and palate patients treated with infant presurgical orthopedics and gingivoperioplasty vs. primary soft tissue closure only. *Amy E. James*
- 1999 An exploratory study to ascertain if relaxin might modulate sutural and periodontal remodeling. *Jonathan L. Nicozisis*
- 2000 Internal marketing and novel clinical technique introduction effects on orthodontic practice growth. *Brian D. Amy*

- 2000 Development of the laser scan craniofacial imaging and animation system. *John C. Slattery*
- 2000 An exploratory study of oscillating physical perturbation effects on chick calvarial osteoblasts with a novel device to apply tensile forces. *Timothy M. Pierce*
- 2000 Osteoblast response to physical perturbation in the presence of alendronate sodium. *Tanya Stavisky*
- 2000 Does the institution where orthodontic education is received be the portent of success. *Gregory Garn*
- 2000 Maxillary expansion: A meta analysis. *Patricia H. Schiffman*
- 2001 A Comparison of Damon SL Brackets to Conventional Ligation Edgewise Brackets with Regard to Treatment Time, Treatment Outcome and Patient Satisfaction. *Jeffrey J. Eberting*
- 2001 Perception of Root Resorption on Stability and Long-term Prognosis. *Kook S. Lee*
- 2001 Temple Smile Index – Development of an Esthetic Index for Objective Evaluation of Smile. *Won Woo Park*
- 2002 The effects of root characteristics and of the dentoalveolar architecture on root resorption. *Justin Sung-Ho Hong*
- 2002 What are the treatment related factors of external apical root resorption? A meta analysis. *Gady Ross Segal*
- 2002 Vertical growth contribution to molar correction in the Class II div 1 patient. *Cuong Van Nguyen*
- 2002 The effects of inappropriate extraction or non-extraction treatment: A quantitative assessment of a qualitative orthodontic result. *Michelle B. Brown*
- 2002 A qualitative assessment of orthodontic parents' perceptions of facial attractiveness and preferences following orthodontic treatment. *Christopher K. Smedley*
- 2002 The relationship between accepted standards of excellence in finished orthodontic cases and stability. *Richard M. Hennebry*

- 2003 The intricacies of referral relationships between orthodontists and other specialists. *Jason S. Bourne*
- 2003 Computer animation of the smile and peri-oral soft tissue with the craniofacial imaging and automation system. *Wilbert Saavedra*
- 2003 Animation of the human smile with the craniofacial imaging and animation system. *Robert Murray*
- 2003 Integration of Invisalign ClinCheck models with the three dimensional facial image and animation of the human smile. *David P. Lee*
- 2004
- 2005

**SERVICES IN PROFESSIONAL and SCIENTIFIC ORGANIZATIONS**

- 1984 NIDR Member, Ad Hoc Study Section
- 1985-87 NRSA Senior Research Fellow, NIH
- 1990 Sponsor AADR Student Research Fellowship
- 1990 Medical Research Council of Canada, External Reviewer
- 1991 Secretary, Section on Orthodontics, AADS
- 1992 Workshop Leader & Panelist, AAO: Educators' Forum
- 1992 Chairman-elect, Section on Orthodontics AADS
- 1993 Chairman, Section on Orthodontics AADS
- 1993 President-elect, Mississippi Association of Orthodontists
- 1994 President, Mississippi Association of Orthodontists
- 1994 - 97 Councilor, Section on Orthodontics, AADS
- 1994 - Member, Board of Directors, Greater Philadelphia Society of Orthodontists

1995 Chairman, Scientific Program Committee, Middle Atlantic Society of Orthodontists

1995 - Member, Education and Research Committee, MASO

Member, AAO Council on Scientific Affairs (COSA)

Member, Study Section, Institute for Liver and Kidney Diseases -- NIH

1998 President-elect, Greater Philadelphia Society of Orthodontists

Chairman, Scientific Program, MASO/GLAO joint meeting, Bermuda

1999 President-elect, Craniofacial Biology Group, IADR / AADR

1999 President, Greater Philadelphia Society of Orthodontists (GPSO)

2000 Chairman, International Orthodontic Journal Editors' Symposium. The World Federation of Orthodontists.

2000 President, Craniofacial Biology Group, IADR / AADR

2000 American Association of Orthodontists Foundation (AAOF) Board of Directors

2001-02 Chairman, Council on Scientific Affairs (COSA)

2004 Chairman, Nominating Committee (MASO)

## PROFESSIONAL ACTIVITY

### Editorships:

2001 – *Editor* – Cases and Commentaries in Orthodontic Technology

1999 - *Editor-in-Chief*, Progress in Orthodontics, official publication of SIDO

1997- *Editor-in-Chief*, Clinical Orthodontics and Research

2000 - Associate *Editor*, Odontology (Nippon University – Japan)

1997- Member, *Editorial Board*, Türk Ortodonti Dergisi (Turkish Journal of Orthodontics)

1997- Member, *International Editorial Board*, Hellenic Orthodontic Review  
(Official Publication of the Greek Orthodontic Society)

1985 - *Editorial Consultant* to American Journal of Orthodontics and Dentofacial Orthopedics

2001 - *Editorial Consultant* to Angle Orthodontist

2005 – *Editor Case Reports & Techniques in Invisalign*

**SPEAKING ENGAGEMENTS** (Invited lectures only)

**International:**

1975 University of Ankara, Ankara, Turkey, "Orthodontics, 1975"

1980 Istanbul University, Istanbul, Turkey, "Orthodontic tooth movement as an adjunct in general dentistry"

1980 Istanbul University, Istanbul, Turkey, "Recent research and clinical advances in orthodontics"

1980 Aegean University, Izmir, Turkey, "Orthodontic tooth movement as an adjunct in general dentistry"

1980 Aegean University, Izmir, Turkey, "Recent research and clinical advances in orthodontics"

1982 Welsh National School of Medicine, University of Wales Dental School, Cardiff, England, "Adjunctive Orthodontics"

1982 Welsh National School of Medicine, University of Wales; Department of Orthodontics, Cardiff, England, "Biochemical mechanisms of bone remodeling"

1982 Istanbul University, Istanbul, Turkey, "An update in Orthodontic Education"

1987 Marmara University, Istanbul, Turkey, "Current Orthodontic Practices"

1987 Associazione Italiana Odontoiatri, Milano, Italy "Periodontal Biology of Tooth Movement"

1987 Bologna University, Bologna, Italy, "Remodeling of Periodontium"

1992 University of Toronto, Toronto, Canada, "A Possible Role for Vascularity in Tooth Movement"

- 1995 Aristotle University, Thessaloniki, Greece "Research and Novel Knowledge at Temple"
- 1996 VI International Symposium on Dentofacial Development and Function, Athens, Greece, "Ultrasound Stimulation of Remodeling in Periodontal Tissues"
- 1997 Expodental 97, Turkish Dental Association, Istanbul, Turkey "Adjunctive Orthodontics and recent developments in radiographic imaging."
- 1997 Aristotle University, Thessaloniki, Greece "Current Research findings at Temple"
- 1997 Orthodontic Society of Northern Greece. "Novel Diagnostic, Therapeutic and Practice Management Techniques"
- 1998 AAO - Patient Care & Management / Practice Transition Conference, Chicago, IL "Why do you have patients? – Effective and ineffective marketing strategies"
- 1998 6<sup>th</sup> International Orthodontic Conference, Turkish Orthodontic Society, Istanbul, Turkey. "The use of ultrasound as potential adjunct in orthodontic tooth movement"
- 1998 International Orthodontic Conference, Turkish Orthodontic Society, Istanbul, Turkey. "The role and responsibility of professional journals and societies in the conduct of ethical research"
- 1999 International congress of SIDO. Rome, Italy. "Three dimensional imaging systems for the craniofacial complex"
- 1999 Humbolt University, Berlin, Germany. Three dimensional imaging and diagnosis
- 2000 Royal Dental College, Aarhus, Denmark. Development of systems for the three dimensional imaging of the craniofacial complex
- 2000 University of Padova, Padova, Italy. 3D imaging of the craniofacial complex.
- 2000 Societa Italiana di Ortodonzia. Genoa, Italy. Motion animation of the human craniofacial complex
- 2001 Osaka University, Japan. Evidence-based orthodontics

- 2002 Athens, Greece - International Conference on Orthodontic Journals.  
"Author, Editor, Reader Triumvirate."
- 2002 Athens, Greece - Fourth International Symposium of the Greek Orthodontic Society. "3D Imaging and Motion Animation."
- 2002 Thessaloniki, Greece - Aristotle University and Northern Greece Orthodontic Society. "Advances in Clinical Orthodontics."
- 2002 Moscow, Russia - Russian Orthodontic Congress. "Evidence and esthetics - 3D assessment."
- 2003 Ferrara, Italy – New Frontiers in Orthodontics, University of Ferrara. "Evidence-based orthodontic practice: new concepts and tools for orthodontic treatment."
- 2003 Ferrara, Italy – New Frontiers in Orthodontics, University of Ferrara. "Literature review."
- 2004 Amsterdam, The Netherlands – North Atlantic Component "3D motion animation of the human face"
- 2004 Berlin, Germany – 1<sup>st</sup> European Symposium in Clinical Orthodontics "3D motion animation fo the human face."

**National:**

- 1972 Middle Atlantic Society of Orthodontists, Philadelphia, "Lead levels of human deciduous and permanent teeth"
- 1972 Summer research seminars, University of Pennsylvania, Philadelphia, "Analytical problems of calcified tissues"
- 1977 Conference of Orthodontic Educators, St. Louis, "Adult orthodontics for the general practitioner"
- 1979 University of Pennsylvania, School of Dental Medicine, Philadelphia, "Effects of diazepam on tooth movement in cats"
- 1980 Baylor University, School of Dentistry, Dallas, Texas "Bone remodelling during tooth movement and growth of the craniofacial complex"
- 1980 The Carl O. Boucher Prosthodontic Conference, Columbus, Ohio, "Adjunctive orthodontics in prosthetic therapy"
- 1980 The Carl O. Boucher Prosthodontic Conference, Columbus, Ohio, "Cephalometric evaluation of the skeletal changes in denture patients - 10 year follow-up study"
- 1980 The Academy of Denture Prosthetics, Daytona Beach, "Cephalometric evaluation of the skeletal changes in denture patients - 10 year follow-up study"
- 1980 Green River Dental Society, Owensboro, Kentucky, Periodontic-Orthodontic Interactions"
- 1980 Indiana University, Department of Orthodontics, Indianapolis, Indiana, "Bone Resorption during Orthodontic Tooth Movement"
- 1981 American Association of Endodontists, Clinical Essayist, Philadelphia, "Endodontic-Orthodontic Interactions"
- 1983 University of Kentucky, Lexington, Kentucky, "Aging of the Craniofacial Complex"
- 1984 University of Michigan, Ann Arbor, "Biology of Tooth Movement"
- 1984 University of Michigan, Ann Arbor, "Cellular aspects of bone remodelling"
- 1985 University of Kentucky, Lexington Kentucky, "Tissue Responses to Orthodontic Tooth Movement" Regional AADR Meeting

- 1986 University of Michigan, Ann Arbor, "Findings of Recent Studies on Calcified Tissues"
- 1986 University of Pennsylvania, Philadelphia, Moderator: "Symposium on Orthodontics"
- 1986 Columbia University, New York, "Tissue Response to Orthodontic Tooth Movement"
- 1986 University of Connecticut, Farmington "Cellular Energy Metabolism in Calcification" Symposium on Biology of Tooth Movement.
- 1987 Emory University, Atlanta, "Energy Metabolism in Skeletal Tissues"
- 1987 Case Western Reserve University, Cleveland, "Energy Metabolism in Calcified Structures"
- 1988 Jackson Dental Study Club "Research and Issues in Orthodontics"
- 1989 University of Kentucky, Lexington, "Mechanical Stimuli on Calcified Tissues"
- 1989 University of Louisville, Louisville, "Periodontal Response to Orthodontic Tooth Movement"
- 1989 University of Mississippi Department of Physiology and Biophysics, "Possible Role for Oxidative Metabolism in Bone Remodeling"
- 1989 Mississippi Dental Association, Biloxi, "Adjunctive Orthodontics"
- 1990 New York University, New York, "Bone Remodeling Under Mechanical Forces"
- 1990 Temple University, Philadelphia, "Periodontal Response to Tooth Movement"
- 1990 University of Tennessee, Memphis, "Mechanisms of Periodontal Remodeling During Tooth Movement"
- 1991 University of Alabama, Birmingham, "Review of Methods that Study Class II Correction"
- 1991 St. Louis University, St. Louis, "Role of Oxygen Tension in Periodontal Remodeling"

- 1991 Jackson Dental Study Club "Reporting of Clinical Studies"
- 1993 University of California, San Francisco "On the Nature of Clinical Information for the Clinicians"
- 1993 University of Mississippi, Jackson "Reports of Clinical Studies"
- 1993 Temple University, Philadelphia, "Caveats in Clinical Studies of Growth Modification"
- 1994 Case Western Reserve University, Cleveland, "New Perspectives in Orthodontic Treatment"
- 1996 Edgewise Orthodontic Society, Cincinnati, "Bone Growth - Clinical Applications"
- 1996 University of Pennsylvania, Philadelphia, "Possible Mechanisms of Periodontal Remodeling"
- 1997 American Association of Orthodontists, annual session, "Ultrasound as a potential adjunct in tooth movement"
- 1997 American Association of Orthodontists, annual session, "Effective and Ineffective Marketing"
- 1997 Middle Atlantic Society of Orthodontists (MASO), "The State of Research at Temple"
- 1997 Greater Philadelphia Society of Orthodontists (GPSO), Session Moderator
- 1998 AAO / COOP - Patient Care & Management and Practice Transition Conference. "Why do you have patients" Chicago
- 1998 AADS - Section on Orthodontics "Development of a 3D imaging system"
- 1998 Baylor College of Dentistry, Dept of Orthodontics. "Effective Marketing Strategies"
- 1998 AAO – Annual Session. "Imaging the Human Craniofacial Complex", Dallas, Tx
- 2000 University of the Pacific. "Studies of three dimensional imaging of the human craniofacial complex"
- 2000 University of California at San Francisco. "Recent advances in orthodontic research"

- 2000 University of Pennsylvania, Department of Biochemistry. "3D imaging of the human craniofacial complex"
- 2000 University of Pennsylvania, Orthodontic Study Club "Development of a 3D imaging system"
- 2000 Charles H. Tweed Foundation, Washington, DC. "3D imaging in orthodontic diagnosis and treatment planning."
- 2001 AAO – Annual session. 3D imaging and motion animation of the craniofacial complex. Toronto
- 2001 University of Kentucky, Evidence-based Orthodontics. Graduation speaker.
- 2002 Moyers Symposium, Ann Arbor University of Michigan. "Three-dimensional motion animation of dentofacial structures."
- 2002 University of Texas. Houston. "3D Motion Animation of the Human Face."
- 2002 University of Pennsylvania. "New perspectives in the biology of tooth movement."
- 2002 University of Texas. Houston. "Biologic principles of orthodontic tooth movement."
- 2003 Moyers pre-symposium, Ann Arbor, University of Michigan. "Chronicle of experiences with Invisalign"
- 2003 Symposium to honor Dr. Lyle E. Johnston, Jr., Ann Arbor, University of Michigan. "Orthodontics is biology-based specialty"
- 2003 Invisalign Summit, Las Vegas, NV. The keynote address.
- 2005 AAO – Annual session. Planning of Dental and Facial Esthetics by Invisalign® Technology. San Francisco, CA
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### Inventions & Patents

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